ENGAGING THE INTERNATIONAL COMMUNITY:

Research on Intelligent Transportation Systems Applications to Improve Environmental Performance

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PATH Program

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Project Overview

This project was proposed to build on the exposure that its participants have had to the thinking of the Japanese and European thought leaders about how Intelligent Transportation System (ITS) can contribute toward meeting environmental goals. Carbon reduction has become a central element, and perhaps even the central element, in the planning for future European and Japanese ITS research and development.

Given the amount of thought that has been devoted to how ITS can support environmental goals in these other countries, there is an opportunity for the U.S. to learn from our international counterparts and to then determine how best to structure a program in the U.S. to complement the international activities and to focus on addressing the most important environmental concerns here. This can build on the existing strengths of the U.S. research community while making the most efficient use of the more limited resources we have available.

Japan's Energy ITS Program

Japan took on the leadership role in making carbon reduction central to its ITS activities. They created the "Energy ITS" program under the New Energy and Industrial Technology Development Organization (NEDO). Within the Energy ITS program, about 90% of the resources have been devoted to the development of an automated truck platooning system. The other 10% of the resources have been devoted to development of models and methodologies for estimating energy and CO_2 reduction from ITS applications. Japan's modeling and analysis has been divided into six primary themes: (1) Definitions of ITS applications that can contribute to CO_2 reduction, (2) Traffic Simulation Modeling, (3) Emissions Modeling, (4) Probe Vehicle Monitoring, (5) Verification and Validation Methodology, (6)International Traffic Data Warehouse.

European ITS Environment Programs

Europe has set goals for the entire transportation sector to reduce its greenhouse gas emissions (GHG) relative to 1990 levels by 20% in 2030 and by 60% in 2050, without "curbing mobility." Three major projects are underway involving reducing CO_2 emissions though ITS applications. The eCoMove project is strongly vehicle oriented, focusing on eco-driving, improving logistics efficiency, improving traffic control, route guidance, advanced driving assistance, and enhanced traffic controls. The In-Time project is multi-modal in focus, integrating real-time travel and traffic information to increase traffic efficiency. The third project, Freilot, is focused on improving the efficiency of urban goods movement.

Conclusions

Europe and Japan have been active in projects aimed at applying ITS technologies to mitigate environmental problems in transportation. The working group structure defined by Japan's Energy ITS program establishes a good framework for international interactions on an important set of issues. Yet technical challenges in modeling and evaluation are considerable, and failing to solve them could impede the deployment of existing ITS applications. There is a need to develop authoritative methods for predicting the CO_2 impacts of the full range of ITS applications so that these can satisfy environmental review requirements to help build the support needed for widespread deployment.